

## REMARKS

In response to the examiner's comments, claim 13 is cancelled and references to "prevention" in claims 44 and 52 have been deleted. The possibility of R<sup>1</sup> and R<sup>2</sup> or R<sup>2</sup> and R<sup>3</sup> or R<sup>7</sup> and R<sup>8</sup> or R<sup>8</sup> and R<sup>9</sup> in claims 1, 31 and 60 forming any type of heterocyclic group has been deleted. The clarity of claim 1 has been improved to redefine "In claim 1, 'X<sup>1</sup> ... and is of the formula: ArX<sup>3</sup>'. A typo was made previously and the text should be read as ArX<sup>3</sup>T. Applicant's attorney apologizes for this error. The support for this can be found in claim 1 of the original application. The definitions in claim 1 have also been amended. for Ar=phenyl to exclude simple compounds with X<sup>3</sup>T =NR'R' or OR'

It is submitted that with these amendments, the 35 USC 112 issues have all been met.

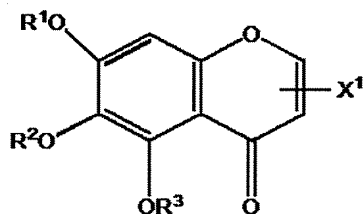
Turning now to the art-based rejection, claim 1 has been amended to try to establish even more clearly the differences of the compounds of the present invention from those of Cassels. The applicants submit that one skilled in the art would clearly recognize the characteristic difference in B ring and 4'-O- or N-substituents of Cassels' Patent and the compounds in claim 1. These compounds are novel and drastically have significant differences different from the cited compounds in Cassels' patent for one skilled in the art of flavonoid compounds for the following reasons.

Firstly Formula I in claim 1 of the present application consists includes X<sup>1</sup> which is defined as ArX<sup>3</sup> and substituted at either 2 or 3 position of the benzopyrone. ArX<sup>3</sup> distinguishes from the B ring of Cassels' disclosure, which covers only hydroxyl and halogen, in many aspects as shown below:

a) Ar of ArX<sup>3</sup>, i.e. the B ring, can be furanyl, thienyl, pyridyl, cyclohexyl or benzyl as well as phenyl (**Compound 7** is illustrated as one example in Figure 2);

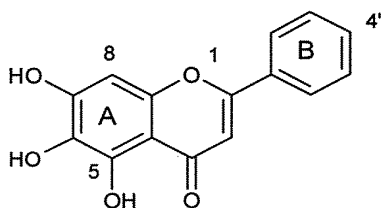
b) X<sup>3</sup> as defined in Formula I is drastically different from simple OH or halogen substituents as defined in Cassels' patent. Some synthesized compounds from claim 1 are also covered in claim 11 as new compounds and structures of a few new compounds such as **Compound 8** (Example 12a, p. 33 lines 28-35 of the application), **Compound 9** (p. 35 lines 32-35), and **Compound 10** (p. 34 lines 21-

24) are illustrated in Figure 2 to demonstrate that their structures are indeed novel and quite different from those in Cassels' patent as shown in Fig. 1. Furthermore, those novel compounds in claim 11 have already been allowed by the examiner.

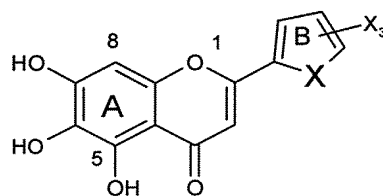


Formula (I)

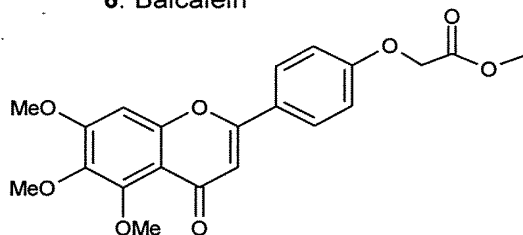
Figure 2



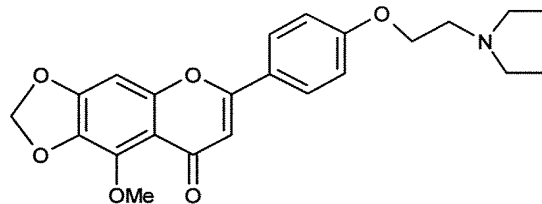
6. Baicalein



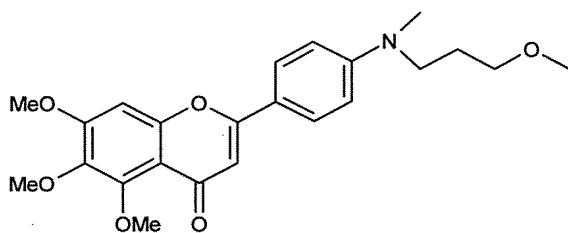
7.  $X = O$  or  $S$  (claim 1)



8. (claim 1 and 11)



9. (claim 1 and 11)



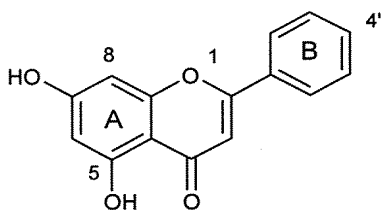
10. (claim 1 and 11)

2. Cassels patent discloses a variety of flavone derivatives where B ring is phenyl and does not consist of heterocycles such focusing on the halogenated chrysin analogs plus some well known flavonoids, in which the 5, 6, 7, 8 and 4' positions are preferably hydrogen, hydroxyl or halo and the most particularly preferred are those wherein the 5 substituent is hydroxyl or hydrogen, the 6-substituent halo, the 7-substituent hydroxyl or halo, the 8-substituent halo and the phenyl group is substituted by hydroxyl and halogen. All of these lack a hydroxyl at the 6 position which is an essential feature of the applicant's claims. Specific named preferred compounds are shown in Figure 1.

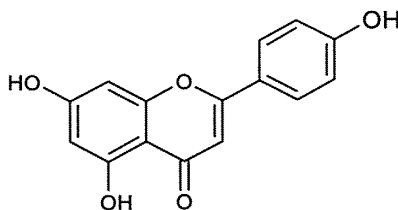
**Chrysin (Compound 1** in Figure 1; the numbering system is also shown) is 5,7-dihydroxyflavone where two hydroxyl groups are on the A ring of the flavone nucleus, while **baicalein** is 5,6,7-trihydroxyflavone (**Compound 6** in Figure 2) where three hydroxyl groups are on A ring.

**Apigenin (Compound 2** in Figure 1) is 4'-hydroxychrysin where two hydroxyls are on the A ring and one hydroxyl is on the B ring.

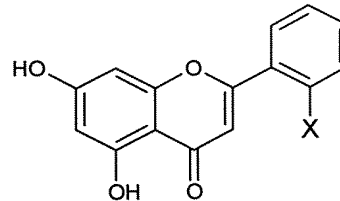
Figure



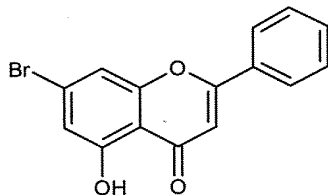
1. Chrysin or 5,7 -dihydroxyflavone (claim 6)



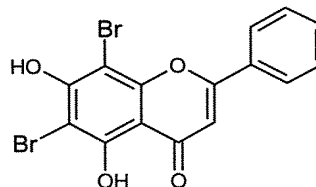
2. Apigenin (claim 8)



3a. 2'-Chlorochrysin (X=Cl)  
3b. 2'-Fluorochrysin (X=F);  
(claim 11)



4. Bromochrysin (claim 15)

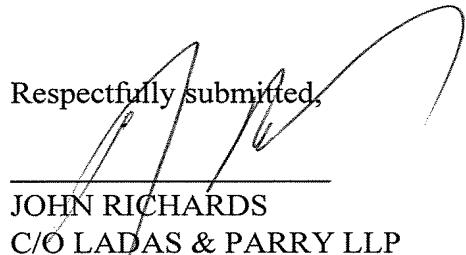


5. 6,8-dibromochrysin (claim 13)

It is therefore submitted that the claims meet the requirements of 35 USC 102 and 103.

In view of the foregoing, it is submitted that this application is in order for allowance and an early action to this end is respectfully solicited.

Respectfully submitted,



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